

INTEGRATIVE BIOLOGY

and

ORGANISMIC & EVOLUTIONARY BIOLOGY

SENIOR THESES

2012-2023

Note: Integrative Biology concentrators can read theses online; contact James Poolner (poolner@fas.harvard.edu) to request an electronic copy. All hard copies from 2018–2023 are also available for viewing in the hallway of BioLabs 1082. **Red text** indicates a Hoopes Prize winner and/or an "Exceptional"-graded thesis.

IB SENIOR THESES, CLASS OF 2023		
STUDENT	TITLE	DIRECTOR
Talia Blatt	<i>Burning Questions: Assessing the Effect of Fire on Sierra Nevada Forest Ecosystems with Field and Remote Sensing Data</i>	Dr. Paul Moorcroft
Alana Carroll	<i>Contrafreeloading and the Play Hypothesis in African Grey Parrots (<i>Psittacus Erithacus</i>) and Umbrella Cockatoos (<i>Cacatua alba</i>)</i>	Dr. Irene Pepperberg
Nick Daley	<i>And the Crowd Goes Wild: Impacts of Siberian Alder Crowding on Surrounding Vegetation in the Alaskan Tundra</i>	Dr. Ben Taylor
Naomi Hegwood	<i>Tall Trees and Where to Find Them: An Exploration of the Effects of Soil Characteristics, Climate, Topography, and Neighbors on Maximum Canopy Height</i> HOOPES PRIZE WINNER	Dr. Paul Moorcroft
Peyton Jones	<i>Ecological and Genetic Edge Effects in <i>Phlox drummondii</i></i>	Dr. Robin Hopkins
Megumi Kirby	<i>Friends with Benefits: Female-Driven Food Sharing in Unrelated Bonobos</i>	Dr. Martin Surbeck
Hana Kiros	[CONFIDENTIAL UNTIL 2025]	Dr. Keith Joung
Anisha Laumas	<i>Express Yourself: A Comparison of Lineage-Specific Gene Expression Between Healthy and Cancer Tissues</i>	Dr. Fei Chen
Magdalen Mercado	<i>Humerus Shape and Function Through the Long Evolutionary History of Mammals and Their Ancestors</i>	Dr. Stephanie Pierce
Anaí Morales	<i>Venturing beyond the Wood Wide Web: Investigating the role of orchid mycorrhizal fungi as root endophytes in non-orchid plants</i>	Dr. Ben Taylor
Nadine Oury	<i>No Sleep, More Stink: The Impact of Sleep Deprivation on Olfaction Driven Behavior in Zebrafish Larvae</i>	Dr. Florian Engert
Lindsay Poulos	<i>Dissecting the Role of Ctcfl and Ctcfls as Mediators of the Fasting Response in the Liver</i>	Dr. Mary Elizabeth Patti
Logan Qualls	<i>A Passion for Graphic Design: Using Parametric Modeling to Analyze Frontal Appendage Morphology in Radiodonta</i>	Dr. Javier Ortega-Hernandez
Maya Rayle	<i>The Role of Evolution, Size, and Ecology in Salamander Dentition Patterns</i>	Dr. Jim Hanken
Dylan Roy	<i>Zany Zombie Zeitgebers: A Circadian Timecourse of Behavior-Altering Fungus <i>Entomophthora muscae</i></i>	Dr. Ben de Bivort
Oksanna Samey	<i>Solving the Promethean Paradox: Elucidating the dynamics of liver regeneration by designing a novel in vivo repeated injury model</i>	Dr. Fernando Camargo
Ashley Schreiber	<i>Moving beyond the respirometer: correlating body movements to metabolism in fish</i>	Dr. George Lauder
Jonathan Sedano	<i>Morphometric Analyses of the Developing Autopods in Human and Mouse Embryos</i>	Dr. Terry Capellini
Katie Sierra	<i>The Fox and the Hound: A Comparative Analysis of Canid-Human Attachment Behaviors in Dogs and Russian Domesticated Foxes</i>	Dr. Erin Hecht
Jocelyn Wang	<i>The role of soil micronutrients in the symbiosis between the African ant plant, <i>Vachellia drepanolobium</i> and its resident ant species</i> HOOPES PRIZE WINNER	Dr. Naomi Pierce
Maddi Waskom	<i>Stuck in the mud: experimental taphonomy and computed tomography demonstrate the critical role of sediment in carcass stabilization during early fossilization</i>	Dr. Javier Ortega-Hernandez
Ashley Watts	<i>CRISPR/Cas9-mediated mutation of the rosy gene in the large milkweed bug <i>Oncopeltus fasciatus</i></i>	Dr. Cassandra Extavour
Athena Ye	<i>The Ecological Benefits and Neural Underpinnings of Drift in <i>Drosophila melanogaster</i></i>	Dr. Ben de Bivort

IB SENIOR THESES, CLASS OF 2022

STUDENT	TITLE	DIRECTOR
Sorcha Ashe	<i>Flying Colors: The Evolution of Wing Color and Color Vision in the Hyperdiverse Eumaeini Butterfly Tribe (Family: Lycaenidae)</i> HOOPES PRIZE WINNER; EXCEPTIONAL GRADE	Dr. Naomi Pierce, OEB
Kemi Ashing-Giwa	<i>An analysis of sedimentary archaea to characterize chemoorganoautotrophic metabolism at cold methane seeps</i>	Dr. Pete Girguis, OEB
Angela Balistrieri	<i>The Effect of M2r Macrophages on the Lung Microenvironment in Hypoxia-induced Pulmonary Hypertension</i>	Dr. Stella Kourembanas , Children's Hospital
James Caven	<i>Many Plants, One Pattern: Environmental Effects on Plasticity in Phlox</i> HOOPES PRIZE WINNER; EXCEPTIONAL GRADE	Dr. Robin Hopkins, OEB
Lauren Church	<i>Sharing vs. Sparing in the Rhizosphere: Ecosystem Impacts and Nutrient Dynamics of Xanthobacter autotrophicus Biofertilizer</i>	Dr. Ben Taylor, OEB
Katie DeGroot	<i>The Ecological Regulation of Symbiotic Nitrogen Fixation in Black Locust (Robinia pseudoacacia)</i>	Dr. Ben Taylor, OEB
Zoe Flores	<i>Assessing the Dynamics of Urban Influence on Moth Diversity and Evolution</i>	Dr. Naomi Pierce, OEB
Graham Friedman	<i>A Phylogenetic Assessment of the Millipede Order Polydesmida</i>	Dr. Gonzalo Giribet, OEB
Nat Fuentes	<i>Evaluating the sequence structure and enhancer activity of de novo regulatory sequences</i>	Dr. Pardis Sabeti, OEB
Juhee Goyal	<i>Development and Validation of Migration Assay for Cellular Backpacks Adhered to Human and Murine Monocytes for Targeted Drug-Delivery [Joint thesis; EngSci primary]</i>	Dr. Samir Mitragotri, SEAS
Cali Grincavitch	<i>Little Cayman Staghorn Coral Dome Restoration Project</i>	Dr. Aaron Hartmann, OEB
Elly Katz	<i>Gene Edit Me, Please</i> EXCEPTIONAL GRADE	Dr. Elena Kramer, OEB
Jack Lawlor	<i>Lumen Morphogenesis of the Chicken Esophagus</i>	Dr. Cliff Tabin, HMS
Nicole Mejia	<i>Plastic Ingestion in Wedge-Tailed Shearwaters: An analysis of Blood Chemistry, Gene Expression and Body Condition</i>	Dr. Scott Edwards, OEB
Eris Mihelic	<i>Dig a Little Deeper: An Examination of the Genetic Basis of Behavioral Evolution in Peromyscus Burrowing</i>	Dr. Hopi Hoekstra, OEB
Aya Mukai	<i>From Fire to Habitat Heterogeneity: Using LiDAR Remote Sensing to Uncover the Impact of Pyrodiversity on Vegetation Structural Heterogeneity across Environmental Gradients</i> EXCEPTIONAL GRADE	Dr. Andrew Davies, OEB
Maranda Ngue	<i>Keeping Rank: Exploring the Relationship between Grooming and Dominance in Bonobos (Pan paniscus)</i>	Dr. Martin Surbeck, HEB
Frances Papandile	<i>Investigating How Human-Specific Variants in Human Accelerated Regions Shape Transcriptional and Spatial Expression of IL1RAPL1 During Neurodevelopment</i>	Dr. Chris Walsh, CHILDREN'S
Johanna Staples-Ager	<i>Increased Virus-Like Particle Specificity Using Tissue-Specific gRNA Promoters</i>	Dr. Jennifer Doudna, UC Berkeley
Sophie Webster	<i>Plants Plants Evolution: Investigating Genetic and Environmental Drivers of Red Oak Phenology</i>	Dr. Robin Hopkins, OEB

IB SENIOR THESES, CLASS OF 2021

STUDENT	TITLE	DIRECTOR
Mushtaaq Ali	<i>Impacts of Fire on Animal Path Abundance in South African Savannas</i>	Dr. Andrew Davies, OEB
Kim Boerrigter	<i>These fins are made for walkin': A comparative musculoskeletal analysis of anglerfish pectoral fins</i>	Dr. Stephanie Pierce, OEB
Ella Frigyik	<i>Phylogeographic investigation into the New Zealand harvestman genus Algidia (Arachnida: Opiliones: Triaenonychidae)</i> [HOOPES PRIZE; GRADED EXCEPTIONAL]	Dr. Gonzalo Giribet, OEB
Marissa Garcia	<i>Improved Population-Level Monitoring of Critically Endangered North Atlantic Right Whales (Eubalaena glacialis) Using Passive Acoustic Monitoring</i> [GRADED EXCEPTIONAL]	Dr. Holger Klinck, Cornell University
Laura Jenny	<i>Beetle Bites and Bacteria: Interactions between plants in the family Cucurbitaceae, their leaf beetle vectors, and Erwinia tracheiphila, a bacterial wilt pathogen</i>	Dr. Naomi Pierce, OEB
Jenny Liu	<i>Orbicella faveolata, A Living Paradox: Characterization of the Coral Microbiome Reveals Core Microbiota Across Life Stages</i>	Dr. Mónica Medina, Univ. of Pennsylvania
Jude Okonkwo	<i>Identification and Evaluation of Synergistic Combination Chemotherapies for Glioblastoma</i>	Dr. Samir Mitragotri, SEAS
Ari Romero	<i>Investigating the locomotor mode of P. delaharpeae with implications for the ecological diversity of non-mammalian cynodonts</i>	Dr. Stephanie Pierce, OEB
Joey Toker	<i>Guts, Germs, and Missing Lncs: The Gut Microbiome and Long Non-coding RNAs in Cancer Immune Evasion</i>	Dr. Marco Mineo, Brigham & Women's Hospital
Erin Wright	<i>Squeezed Until They Burst: Does calcium affect the mechanical properties of leaf cell walls?</i>	Dr. Missy Holbrook, OEB
Alex Zaloga	<i>Axon Guidance Cues in the Visual System of the Cephalopod Doryteuthis pealeii</i>	Dr. Kristen Koenig, FAS
Luann Zerefa	<i>Osteohistology of Salamanders with Varying Levels of Terrestriality and Applications for Interpreting Fossil Habitats</i>	Dr. Stephanie Pierce, OEB

IB SENIOR THESES, CLASS OF 2020

STUDENT	TITLE	DIRECTOR
Rewan Abdelwahab	<i>Modeling Resistance to Tyrphostin NT157 in ER-Positive Breast Cancer Cells</i>	Dr. Douglas Yee, University of Minnesota
Sarah Alam	<i>Investigating the relationship between implicit and explicit knowledge in Artificial Grammar Learning: An ERP Study</i>	Dr. Yael Arbel, MGH Inst. Of Health Professions
Elizabeth D'Haiti	<i>Investigation of the timeline and role of neoblast formation in <i>Hofstenia miamia</i> embryogenesis</i>	Dr. Mansi Srivastava, OEB
Mary Katherine DeWane	<i>Ecology and Morphology of Staminodes, A Novel Floral Organ in <i>Aquilegia</i></i>	Dr. Elena Kramer, OEB
Jessica Diaz	<i>Milk and Microbes: Effects of secretor status on infant energy gain through the gut microbiome</i>	Dr. Rachel Carmody, HEB
Brandon Duffy	<i>Characterization of a Murine Model of Oxazolone-Induced Orbital Inflammation</i>	Dr. Leo Kim, Mass. Eye & Ear
Stephanie Dufresne	<i>Testing Grey Parrot (<i>Psittacus erithacus</i>) Language Development Through Sequences and the Preposition "In"</i>	Dr. Irene Pepperberg, Psychology
Kevin Eappen	<i>The Therapeutic Potential of Diet-Derived Polyphenols for Attenuating Metabolic Disorders Through the Gut Microbiota</i>	Dr. Rachel Carmody, HEB
Skye Fenton	<i>Movement and Resource Use Analysis of European Golden Jackals (<i>Canis aureus</i>) and European Roe Deer (<i>Capreolus capreolus</i>)</i>	Dr. Paul Moorcroft, OEB
Justina Hewitt	<i>Evolution of Social Ground-Dwelling Sciuridae (Marmotini): Climatic and Life History Drivers</i>	Dr. David Haig, OEB
Annina Kennedy-Yoon	<i>Ants in your plants: the effect of ant species on the morphology and fungal communities of <i>Vachellia drepanolobium</i></i>	Dr. Naomi Pierce, OEB
Allison Law	<i>Consider the lobster ectocommensal, <i>Symbion americanus</i>: phylogeographic analysis reveals spatial niche partitioning on host mouthparts [HOOPES PRIZE]</i>	Dr. Gonzalo Giribet, OEB
Mattia Mah'moud	<i>Examining Risk Factors for Low Plasma Magnesium in Women</i>	Dr. Kathryn Rexrode, Brigham & Women's Hospital
Elena Moncada	<i>Molecular Phylogeny of the Genus <i>Donax</i> (Bivalvia): A Species-Level Investigation into the Relationships of Globally Distributed Surf Clams</i>	Dr. Gonzalo Giribet, OEB
Dylan Ryals	<i>Of Mites and Men: Using spatially-explicit sampling and genetic sequencing to uncover disease dynamics of honeybee parasite <i>Varroa destructor</i> in migratory apiculture [HOOPES PRIZE]</i>	Dr. Brian Farrell, OEB
Chinmay Sonawane	<i>A defence of the queens of Africa: the public health and economic benefits of spotted hyenas (<i>Crocuta crocuta</i>) [GRADED EXCEPTIONAL; HOOPES PRIZE & CAPT. JONATHAN FAY PRIZE]</i>	Dr. Neil Carter, University of Michigan
Dexter Summers	<i>Deep-Sea Crushers: The Evolution of Specialized Pharyngeal Jaws in the family Myctophidae [GRADED EXCEPTIONAL]</i>	Dr. George Lauder, OEB
Rory Wakeford	<i>I Hate to See You Go, but I Love to Watch You Leave: The Social Mechanisms Underlying Group Movement and Leadership in Forest-Dwelling Olive Baboons (<i>Papio anubis</i>)</i>	Dr. Isaac Schamberg, HEB
William Wang	<i>Identification of Autism-Associated Motor Stereotypes in a Rat Model of Fragile X Syndrome via a Novel Motion Capture Technique [GRADED EXCEPTIONAL]</i>	Dr. Bence Ölveczky, OEB
Adele Woodmansee	<i>"It Is Pure Criollo Maize": Subsistence Agriculture and Ideas of Locality and Contamination In San Miguel del Valle, Oaxaca [HOOPES PRIZE, CAPT. JONATHAN FAY PRIZE, and TALIESIN PRIZE]</i>	Dr. Chuck Davis, OEB

IB SENIOR THESES, CLASS OF 2019

STUDENT	TITLE	DIRECTOR
Nina Armstrong	<i>Investigation of the Arginine Biosynthesis Pathway as a Novel Drug Target in Mtb's Relative M.abcessus</i>	Brian Weinrick (Trudeau Institute)
Kevin Bao	<i>Population Genetics of Malaria Parasite Protein Pfs47, the: The Buzz Surrounding its Diversity and What Can Be Inferred about its Evolutionary History</i>	Dan Hartl
Zeke Benshirim	<i>Stalks of Mature Fern Sporangia Collapse Selectively to Regulate Dehydration and Spore Dispersal</i>	Missy Holbrook
Andrea Brown	<i>Mate choice in hybrid wildflower species: pollen-pistil incompatibility as an isolating mechanism</i>	Robin Hopkins
Johnathan Clark	<i>Population Genetics Study of Cryptic Speciation and Adaptation in the North American Catharus Thrushes, a</i>	Scott Edwards
Isabella Colocci	<i>Trial by Fire: Investigating the Structure and Activity of Microbial Communities in a Dynamic Fumarole Environment</i>	Pete Girguis
Francesca Cornero	<i>Piagetian Liquid Overconservation in African Grey Parrots (Psittacus erithacus)</i>	Irene Pepperberg (Psychology)
Emmanuel D'Agostino	<i>Estimating Premating Isolation Among Allopatric Anolis sagrei Populations</i>	James Hanken
Brendan Dean	<i>Burning questions: Responses to fire by partners in a complex ant-plant symbiosis [HOOPES WINNER]</i>	Naomi Pierce
Camille DeSisto	<i>Consequences and Spread of the Invasive Strawberry Guava (Psidium cattleianum) in Madagascar's Rainforests [HOOPES WINNER]</i>	Chuck Davis
Matt Diaz	<i>Differentiation therapy in osteosarcoma: developing the foundations for a novel approach to a highly fatal disease</i>	David Scadden (MGH)
Jackie Ho	<i>Influence of Drought Legacy Effects on Mediterranean Ecosystem Structure and Composition</i>	Paul Moorcroft
Charlie Lee	<i>Trust Your Gut: Glycosphingolipids from the Gut Commensal Bacteroides Fragilis and Their Unique Immunomodulatory Function to Colonic Invariant Natural Killer T Cells [HOOPES WINNER]</i>	Dennis Kasper (HMS)
Kathryn Nunes	<i>Characterizing essential Shigella flexneri proteins utilized in gastrointestinal infection</i>	Christina Faherty (MGH)
Maria Park	<i>Leaf-Level Carbon Dynamics of Trees with Different Phloem Loading Strategies in Elevated CO2 Conditions</i>	Missy Holbrook
Meagan Popp	<i>Denticle surface of thresher shark tails, the: three-dimensional structure and comparison to other pelagic sharks</i>	George Lauder
Max Prager	<i>Display and Compromise: A Study of Ornamentation in Lizard Evolution</i>	David Haig
Allison Rabe	<i>Effects of a Natural Disturbance on Island Ecosystems at Multiple Scales, the: Shifts in Lizard Morphology and Microhabitat Use and Arthropod Abundance and Diversity after Hurricane Irma</i>	David Haig
Liz Roux	<i>Floridian Flatworms And Horseshoe Crabs: Phylogeographic Differentiation in Bdelloura candida, the Ectocommensal Marine Triclad of the Atlantic Horseshoe Crab Limulus polyphemus</i>	Gonzalo Giribet
Tom Saide	<i>Selection of Reference Genes for Real-Time Quantitative PCR Studies in Aquilegia x coerulea "Origami"</i>	Elena Kramer
Brady Stevens	<i>Adaptations for Height and Light in Three Species of Polytrichaceae</i>	Missy Holbrook
Sophie Westbrook	<i>Exploratory Behavior and Phenotypic Convergence in Four Subspecies of Deer Mice</i>	Hopi Hoekstra

IB SENIOR THESES, CLASS OF 2018

STUDENT	TITLE	DIRECTOR
Juliet Bramante	<i>Development and Characterization of an Acid-Sensitive Microbial Kill Switch</i>	Pam Silver, HMS
Hayoung Chang	<i>Developmental Effects on Reward Sensitivity in Rhesus Macaques</i>	Alex Rosati, U. Michigan
Andre Dempsey	<i>Effect of Load Placement on Metabolic Rate during Loaded Walking in Humans</i>	Dan Lieberman, HEB
Michael Dybala	<i>Exploration of epigenetic modulation in type 1 diabetic human immune cells following exposure to Mycobacteria bovis [HOOPES WINNER]</i>	Denise Faustman, MGH
Annika Gompers	<i>Identification of transcriptional regulators of whole-body regeneration [HOOPES WINNER and GRADED EXCEPTIONAL]</i>	Mansi Srivastava
Sarah Gonzalez	<i>Breaking Up the Cat Back: Regionalization of Vertebral Form and Function in Felis catus</i>	Stephanie Pierce
Rebecca Greenberg	<i>Effects of sex and reproductive status on social burrow construction in Peromyscus polionotus</i>	Hopi Hoekstra
Annelie Herrmann	<i>Scaling by performance: performance trait divergence as intraspecific differentiation of Anolis sagrei between two habitats</i>	Jonathan Losos
Valerie Kahkejian	<i>Developing Novel Ganglioside-Based Therapeutics to Treat Inflammatory Bowel Disease</i>	Dan Chinnapen, Children's Hospital
Gaia Linfield	<i>Neural Mechanisms Underlying Age-specific Changes in Multisensory Integration in Caenorhabditis elegans</i>	Yun Zhang
Hanon McShea	<i>The Evolutionary History of Nitrogenase: Using Ancestral Protein Reconstruction to Investigate Adaptation to Precambrian Selective Pressures [GRADED EXCEPTIONAL]</i>	Betul Kacar, University of Arizona
Nina Morales	<i>Experimentally-induced predation pressure alters the foraging ecology of brown anoles (Anolis sagrei) on Bahamian islands</i>	Jonathan Losos
Shunn Theingi	<i>Pigmentation variation in Peromyscus maniculatus across an environmental gradient</i>	Hopi Hoekstra

OEB & IB SENIOR THESES, CLASS OF 2017

STUDENT	TITLE	DIRECTOR
Madeleine Ankhelyi	<i>Diversity of dermal denticle structure in sharks: surface roughness and 3D morphology</i>	George Lauder
Lorena Benitez	<i>Vertebral Anatomy and Locomotor Evolution in Synapsids: A Geometric Morphometric Approach</i>	Stephanie Pierce
Liz Benson	<i>Community succession and convergence in Australian pitcher plant microcosms (Hoopes Winner)</i>	Naomi Pierce
Emma Borjigin-Wang	<i>Nonstructural carbohydrate dynamics and wood anatomy in Quercus rubra</i>	Andrew Richardson
Julius Bright Ross	<i>Artificial Supplemental Feeding in Alpine Environments: Effects on Roe Deer (Capreolus capreolus) Habitat Selection</i>	Paul Moorcroft
Chelsea Cherenfant	<i>It's Fun to Understand Y-n-c-E: Elucidating the Role of the Uncharacterized Protein YncE in Salmonella Enterica Serovar Typhi Carriage</i>	Richelle Charles (HMS/MGH)
Michelle Choi	<i>The Control Lab Rat: Characterizing Rodent Behavior in Standard Laboratory Conditions</i>	Bence Ölveczky
Eamon Corbett	<i>Phylogeography of the Rufous-fronted Thornbird (Phacellodomus rufifrons), with Implications for South American Dry Forest Biogeography</i>	Scott Edwards
Emily Donaldson	<i>The Role of BIG PETAL in Developing Nectar Spurs in Aquilegia</i>	Elena Kramer
Katie Gibson	<i>Digital Modeling of the Vertebral Column of the Cynodont Thrinaxodon</i>	Stephanie Pierce
Alice Linder	<i>De-ranged: How competitiveness and functional traits predict range shifts of deciduous trees in eastern North America</i>	Lizzie Wolkovich
Ashton MacFarlane	<i>Cold Treatment Regulates Expression of Phenology-Relevant Candidate Genes in the English Walnut, Juglans regia (Hoopes Winner)</i>	Ned Friedman
Annie Opel	<i>The Effect of Coral Restoration on Reef Fish Communities (Graded Exceptional)</i>	Colleen Cavanaugh
Abba Parker	<i>Investigation of Habitat Partitioning in Fossil Horses of North America (Graded Exceptional)</i>	Stephanie Pierce
Christian Perez	<i>Niche partitioning and locomotor patterns in three species of mainland Anolis lizards in a tropical Costa Rican rainforest</i>	Jonathan Losos
Jess Rhodes	<i>The Genetic Basis of Sleep Duration and Irregularity</i>	Charles Czeisler (BWH)
Kristin Tsuo	<i>Large-scale genome wide association of human body proportion (sitting height ratio)</i>	Joel Hirschhorn (Broad Inst.)

OEB & IB SENIOR THESES, CLASS OF 2016

STUDENT	TITLE	DIRECTOR
Gabriel Amador	<i>Exploring differential regulation of a neofunctionalized paralog of APETALA3 that controls novel organ identity in Aquilegia</i>	Elena Kramer
Caitlin Andrews	<i>Sex Differences in Habitat Use and Ranging of Spider Monkeys (Ateles geoffroyi yucatanensis) in the Calakmul Biosphere Reserve, Mexico, and Implications for Conservation</i>	Kathy Slater
Perna Bhat	<i>Of Mice and Mystacial Whiskers: Adaptive Evolution of Vibrissae Morphology in Peromyscus and Apodemus Mice</i>	Hopi Hoekstra
Imani Bunn	<i>Developing in Style: The Role of STYLISH1 in Aquilegia Carpel and Petal Spur Development</i>	Elena Kramer
Andrew Clark	<i>How do yellow jackets (Vespula germanica) fly while carrying loads?</i>	Stacey Combes
Laura Clerx	<i>How Do Trees Maintain Photosynthate Transport from Leaves to Roots as they Grow Taller? A study of the ontogenetic scaling of phloem sieve tube hydraulic resistance with tree height in Quercus rubra</i> [Hoopes Prize & Exceptional-graded]	Missy Holbrook
Chesley Ekelem	<i>Effects of wood pollution on pore water sulfide levels and eelgrass germination</i>	Peter R. Girguis
Kate Freedberg	<i>Development and ecological function of the novel floral organ staminodia in Aquilegia</i>	Elena Kramer
Sally Gee	<i>Adding timing to the framework of functional traits: A study of phenology across temperate deciduous angiosperm trees</i>	Lizzie Wolkovich
Simone Hasselmo	<i>Social Connections: Relationships between white matter integrity of the uncinate fasciculus and social awareness and cognition in typically developing children</i> [Hoopes Prize]	Charles A. Nelson
Ariana Kam	<i>A Comparative Study of the Effects of Pregnancy on Burrowing and Nesting Behaviors in Sister Species of Peromyscus</i>	Hopi Hoekstra
Liz Karan	<i>The scales of cnidarian associated fishes and their functional implications</i>	George V. Lauder
Paige Kouba	<i>Aedes Dance Party: Interbreeding and Hybridization Between Aedes triseriatus and Aedes hendersoni in Eastern Massachusetts</i>	Brian D. Farrell
Sam Lin	<i>Identifying Potential Regulatory Elements of Human and Canine Osteosarcoma Using the Type II CRISPR/Cas-9 Genome Editing System</i>	Jessica Alfoldi
Samantha Martin	<i>The role of the type 1 pilus in Streptococcus pneumoniae biofilm formation</i>	Rick Malley
Veeral Mehta	<i>Insights into dsRNA Export: Mapping a Potential Export Mutant, Social RNA, and Characterizing SID-5 Membrane Localization</i>	Craig P. Hunter
Rachel Moon	<i>Examining the Ecological, Morphological, and Behavioral Correlates of Dorsal Pattern Variations in Female Brown Anole Lizards (Anolis sagrei)</i>	Jonathan Losos
Gaby Ruiz-Colon	<i>Characterization and Contextualization of Flux Through the Polyol Pathway as a Biomarker for the Presence of Risk Factors of Vascular Complications of Type 1 Diabetes in Children and Adolescents</i>	Lori Laffel
Ellen Shrock	<i>Genome Engineering for Porcine-to-Human Xenotransplantation</i>	George Church
Layla Siraj	<i>Mutation, Selection, and the Cost of Artificial Genes</i>	Jeffrey Way
Emilie Thompson	<i>Mapping Adaptive Immune Development in Zebrafish</i>	Len Zon
Nia Walker	<i>Characterizing Differential Gene Expression in Probing Larvae of the Caribbean Coral Species Porites astreoides Lamarck, 1816</i> [Hoopes Prize]	Gonzalo Giribet
Tristan Wang	<i>Herpomyces: The Phylogeny, Taxonomy, and Ecology of a Fungal Genus Parasitic on Cockroaches</i>	Donald H. Pfister
Alex Weickhardt	<i>Dorsal fin structure and stiffness in the freshwater perches (Acanthomorpha: Percomorpha: Percidae)</i>	George V. Lauder

OEB & IB SENIOR THESES, CLASS OF 2015

STUDENT	TITLE	DIRECTOR
Hannah Borowsky	<i>A Biological Perspective on Why Teenagers Do Stupid Stuff</i> [Hoopes Winner]	Margaret Sheridan
Stephanie Caty	<i>Dressed to Kill: Toxicity in the Little Devil Poison Frog</i> [Hoopes Winner]	Lauren O'Connell
Aubrey Faust	<i>Development of a single nucleotide polymorphism barcode for Plasmodium vivax</i>	Pardis Sabeti
Alex Heyde	<i>Geometric morphometrics of adaptive cranial diversity in phyllostomid bats</i> [Hoopes Winner] [Graded "Exceptional"]	Arkhat Abzhanov
Alexander Jaffe	<i>Geographic variation in morphology and its environmental correlates in a widespread American lizard, Anolis carolinensis</i>	Jonathan Losos
Sang Il Kim	<i>Phylogeny, Systematics, and Evolution of the Family Lucanidae Latreille (Insecta: Coleoptera)</i> [Graded "Exceptional"]	Brian D. Farrell
Young Kwon	<i>The genetic basis of parental care in Peromyscus</i> [Hoopes Winner]	Hopi Hoekstra
Nicholas Lee	<i>Cell-specific transcriptional networks underlying epigenetic induction of adult cortical plasticity</i>	Takao Hensch
Bonnie Lei	<i>Tracking disease emergence: Contrasting patterns in mammal-bacteria coevolution</i>	Kevin Olival
Tess Linden	<i>The role of Agouti isoforms in the evolution of convergent pigmentation phenotypes in Peromyscus mice</i> [Hoopes Winner] [Graded "Exceptional"]	Hopi Hoekstra
Mikhaila Marecki	<i>Overcoming a Mechanical Disadvantage: Design and Evaluation of Feeding Performance in a Biorobotic Viperfish (Chauliodus sloani)</i>	George V. Lauder
Jenna McGugan	<i>A Deadly Diet: Dietary contributions to chemical defenses in the Little Devil frog, Oophaga sylvatica</i>	Lauren O'Connell
Emily Mistick	<i>Effects of wing flexibility on bumblebee flight stability</i>	Stacey Combes
Li Murphy	<i>A Bee's Chemical Cues of Sociality: Insights into Origins of Social Insect Behavior from Lasioglossum albipes</i>	Naomi E. Pierce
John Pulice	<i>It Takes Two: A Population Genomics Approach to Detecting Pairing Preference in Autotetraploid Arabidopsis Arenosa</i>	Kirsten Bomblies
Radhika Rastogi	<i>Structure Function Analysis of Ubiquitin-Specific Protease 1</i>	Alan D'Andrea
Valentina Rodriguez	<i>Trees and Treetops: A Study of Phylogeny and Natural History of the Orbiliomycetes in New England</i>	Donald H. Pfister
Michael Seward	<i>Nutrition Interventions at University Dining Halls</i>	Avik Chatterjee
Sam Smith	<i>A Comparative Characterization of Cranial Base Development as it Relates to Facial Growth in Seba's Short-tailed bat, Carollia perspicillata, and mouse, Mus musculus</i>	Arkhat Abzhanov
Julie Vu	<i>Investigating gene expression differences due to genome doubling in the autotetraploid Arabidopsis arenosa</i>	Kirsten Bomblies
Charlie Wolock	<i>Exploring the functional diversity of microbial communities within carnivorous pitcher plants</i>	Naomi E. Pierce

OEB SENIOR THESES, CLASS OF 2014

STUDENT	TITLE	DIRECTOR
Emily Burke	<i>Genetic variation and geographic differentiation in the ectocommensal marine triclad <i>Bdelloura candida</i> (Platyhelminthes, Tricladida, Maricola)</i>	Gonzalo Giribet
Inanna Carter	<i>Insect Community Assembly of Hawaiian Lobelioideae Plants (Campanulaceae): A Community Phylogenetic Study [Graded "Exceptional"]</i>	Charles C. Davis
Julia Clark	<i>Infection Dynamics of Syphilis in Communities of Men Who Seek Sex With Men Using Geo-Social Networks</i>	Rumi Chunara
Alexander Cunha	<i>Salmon-Derived Nutrient Flow in an Impacted Southern Watershed</i>	Andrew Richardson
Thomas Dai	<i>Wing Spectral Properties and Androconial Structures in Eumaeine Butterflies</i>	Naomi E. Pierce
Fayola Fears	<i>Uncovering the Genetic Basis of Adaptive Sperm Morphology in <i>Peromyscus</i></i>	Hopi Hoekstra
Kristina Funahashi	<i>Six-Year Trends in Anterior Cruciate Ligament Injury Incidence in the General Population: Gender Differences in Injury and Reconstruction Rates</i>	Andrew A. Biewener
Tyler Gamble	<i>On <i>Anolis bicaorum</i></i>	Jonathan Losos
Min Lee	<i>Impact of Diffuse Radiation Measurements on Modeling Carbon Budgets: A Model-Data Fusion Experiment at Bartlett Experimental Forest</i>	Andrew Richardson
Alison Liou	<i>Non-Enzymatic RNA Replication: Towards An Understanding of the Origins of Life</i>	Jack W. Szostak
Yue Meng	<i>A Candidate Gene Screen for Germ Line Markers and A Characterization of Oogenesis in the American House Spider <i>Parasteatoda tepidariorum</i></i>	Cassandra Extavour
Alberto Rivera	<i>Assessing the role of tendon elastic energy, granular substrate, and pitch stabilization in <i>J. Jaculus</i> Jumps.</i>	Andrew A. Biewener
Georgia Shelton	<i>The Biodiversity of the Bees at the Arnold Arboretum [Hoopes Winner]</i>	Brian D. Farrell
Alex Stote	<i>A morphological analysis of the suction disc performance and inter-specific host association in the remoras (Percomorpha: Carangiformes: Echeneidae)</i>	George V. Lauder
Tanner Strickland	<i>Lizards bridging the gap: Phylogeography of the Puerto Rican Crested Anole (<i>Anolis cristatellus</i>) across the Puerto Rican Bank [Hoopes Winner] [Graded "Exceptional"]</i>	Jonathan Losos
Kathy Wang	<i>Revealing novel properties of a hybrid antibiotic and drug resistance interactions through evolution and whole-genome sequencing [Graded "Exceptional"]</i>	Roy Kishony
Felix Wu	<i>Small Colonies and Dwarf Cells: The Effects of Starvation Stress on <i>Escherichia coli</i></i>	Ralph Mitchell

OEB SENIOR THESES, CLASS OF 2013

STUDENT	TITLE	DIRECTOR
Joseph Brancale	<i>A Bird's Eye View of Beak Shape: Understanding patterns and constraints on beak morphogenesis</i>	Arkhat Abzhanov
Zachary Herring	<i>The color of promiscuity: How personality influences the timing of molt and extra-pair paternity In the Superb Fairy-Wren (Malurus cyaneus)</i>	Scott V. Edwards
Natalie Jacewicz	<i>Ontogenetic transitions in morphology and behavior in anoles of the southern Dominican Republic</i>	Jonathan Losos
Fiona Jevon	<i>The importance of age and competition in driving red maple decline in a northeastern mixed deciduous forest</i>	J. William Munger
Courtland Kelly	<i>Old Ways and New Ways: Utilizing classic and revolutionary tools to examining the effects of temperature on flowering time</i>	Charles C. Davis
Alexander Kim	<i>Across the Bridge of the World: Isthmian sister species, canal-mediated invasion, and transoceanic dispersal in Macrobrachium, a pantropical genus of amphidromous prawns (Decapoda: Caridea: Palaemonidae)</i>	Gonzalo Giribet
Amanda Lu	<i>The recent evolution of Mycoplasma gallisepticum in house finches</i>	Scott V. Edwards
Anna McKenney	<i>Which side is up: The conserved role of ASYMMETRIC LEAVES1 in promoting adaxial identity in compound leaves</i>	Elena Kramer
Anita Murrell	<i>Energetic Costs of Ascending Flight in Bumblebees Bombus impatiens: To Bee or Not to Bee a Large or Small Individual</i>	Stacey Combes
Yangshu Pan	<i>Born to Burrow: The ontogeny of burrowing behavior in deer mice (Peromyscus)</i>	Hopi Hoekstra
Akhilesh Pathipati	<i>More Than Meets the Eye: Sensory Integration and Motion Prediction</i>	John Assad
Julianne Pelaez	<i>A Community of Third-Party Organisms on Ant-Plants</i>	Naomi E. Pierce
Ian Shields	<i>Driving Adaptive Radiations: Pressure of thermoregulation on display and microhabitat selection in three cybotoid anoles</i>	Jonathan Losos
Charesa Smith	<i>TRIM6: A Sentry for Antiviral Defense</i>	Joern Schmitz
Richard Stanley	<i>Effects of habitat disturbance on a montane bird community</i>	Jonathan Losos
Lila Strominger	<i>The role of dominant fungi in convergent carnivorous pitcher plants</i>	Anne E. Pringle
Alena Tofte	<i>How Trees Cope With Cavitation: Stem Xylem Refilling and Leaf Safety Margins</i>	N. Michele Holbrook
Elaine Tran	<i>Applications of Population Diversity Analysis in Malaria Eradication</i>	Dyann Wirth
Emily Unger	<i>Reconstructing the RNA World: A Study of Primerless Non-Enzymatic RNA Replication [Hoopes Winner] [Graded "Exceptional"]</i>	Jack W. Szostak
Olivia Weeks	<i>The molecular basis of dental development in A. mississippiensis, the American Alligator [Hoopes Winner]</i>	Arkhat Abzhanov
Bonnie Wong	<i>Reciprocal crosstalk of dendritic cells and natural killer cells</i>	Jack L. Strominger
Jelle Zijlstra	<i>Erinaceids and tarsiers from the Miocene of Pakistan: A study of systematics, phylogeny, and biogeography, with the description of a new genus and two new species[Graded "Exceptional"]</i>	Hopi Hoekstra

OEB SENIOR THESES, CLASS OF 2012

STUDENT	TITLE	DIRECTOR
Annabel Beichman	<i>Gut Flora of the North Atlantic Right Whale: The 0.2μm Inhabitants of a 17m Leviathan</i>	James J. McCarthy
Bianca Lec	<i>The Nose Knows? A Study of MHC, Fitness, and Mate Choice in a Petrel</i>	Scott V. Edwards
Kevin Lin	<i>You've Got Tail: Analyses of caudal vertebral variation in the deer mouse <i>Peromyscus maniculatus</i></i>	Hopi Hoekstra
Julian Moll-Rocek	<i>The effects of selective logging on <i>Bertholettia excelsa</i> natural regeneration: An investigation of compatability for multiple-use forest management in Madre de Dios, Peru</i> [Hoopes Winner]	N. Michele Holbrook
Kimberly O'Donnell	<i>Life in a Warmer World: Investigating the Physiological and Molecular Basis of Flowering Time Responses to Climate Change</i>	Elena Kramer
Riva Riley	<i>Same- and mixed-species schooling dynamics in <i>Corydoras aeneus</i></i> [Hoopes Winner]	David A. Haig
Hanny Rivera	<i>Effects of the herbivorous gastropod <i>Cerithium litteratum</i> on the settlement and post-metamorphic growth and survival of the brooding coral <i>Porietes astreoides</i></i>	Robert M. Woollacott
Guo Xuan Teo	<i>Sculpting the Flower: A Single Gene Duplication Underlies Complex Patterns of Functional Evolution in the Columbine Flower (<i>Aquilegia</i>)</i> [Graded "Exceptional"]	Elena Kramer
Lu Wang	<i>The Role of a Floral Repressor (FLM) in Environmental Adaptation of Flowering Time in <i>Arabidopsis Arenosa</i> Ecomorphs: subspecies <i>arenosa</i> and <i>borbasii</i></i>	Kirsten Bomblies
Grace Xiong	<i>Quantifying Center of Mass Motion in Swimming Fish: effects of speed and locomotion mode</i>	George V. Lauder
Serena Zhao	<i>A fungus among us: the distribution of <i>Laboulbeniales</i> on <i>Carabid</i> and <i>Coccinellid</i> hosts</i>	Anne E. Pringle